PRIORITIZING UTAH'S 303(D) LIST

12/24/2015

Utah's 303(d) Vision

The Utah Division of Water Quality (the Division) is committed to engaging the public in establishing priorities for water quality restoration through Total Maximum Daily Load determinations or alternative strategies and protection of existing high quality waters. The process for soliciting public input and how it was used to define the Division's priorities is provided herein.

Prioritizing Utah's 303(d) List

BACKGROUND

In 2013, EPA announced a new framework for implementing the Clean Water Act (CWA) Section 303(d) Program. The new Program Vision is informed by the experience gained over the past two decades in assessing and reporting on water quality and in developing approximately 65,000 TMDLs nationwide. It enhances overall efficiency of the CWA 303(d) Program, encourages focusing on priority waters, and provides States flexibility in using tools in addition to TMDLs to restore and protect water quality.

With the recognition that there is not a "one size fits all" approach to restoring and protecting water resources, Utah has developed tailored strategies to implement its CWA 303(d) Program responsibilities in the context of our water quality goals. While the Vision provides a new framework for implementing the CWA 303(d) Program, it does not alter Utah's responsibilities or authorities under the CWA 303(d) regulations.

SOLICITING INPUT

The intent of soliciting input is to provide an open forum for dialog and involvement among DEQ, other agencies, public, stakeholders, and the regulated community.

The prioritization process has been guided by the Division's mission statement:

"Protect, maintain and enhance the quality of Utah's surface and underground waters for appropriate beneficial uses; and protect the public health through eliminating and preventing water related health hazards which can occur as a result of improper disposal of human, animal or industrial wastes while giving reasonable consideration to the economic impact."

Types of Input

There are many factors to consider in prioritizing waters for restoration and protection including specific waterbodies and/or watersheds, types of water quality impairments, the severity of their impact on beneficial uses, and the different beneficial uses themselves. As a governmental agency responsible to the public for protecting and improving water quality the Division must consider providing the greatest service to the greatest number. Given that time, staff, and funding are limited, the number who can be served is constrained by the availability of these resources. These constraints can be overcome however through partnerships with other governmental agencies and non-governmental organizations to share the work load and move forward to better protect and restore water quality.

The Division must also consider the magnitude of risks to public health and the environment in establishing priorities for protection and restoration. As specifically mentioned in the mission statement above, protecting public health will continue to be a top priority for the Division. This priority translates into many different aspects of Utah's water quality program, including specific designated uses such as drinking source water and recreational use, and specific pollutants that cause impairment such as *E. coli* and heavy metals. Not coincidentally, many water quality problems that threaten public health also impact the ecological health of Utah's waters. Priority for restoration and/or protection should be given where a specific pollutant of concern affects multiple uses to achieve the greatest benefit for the public and the environment.

Finally, priority should be given to water quality concerns that can be addressed with the resources, technologies, and policies available. This can be defined as the "Recovery Potential" for that issue to be corrected.

Outreach

Utah's Watershed Management Program is focused on protecting and restoring the water quality of our streams, lakes and reservoirs and is guided by the direction and feedback received from the Utah Water Quality Taskforce, made up key stakeholder and partner agency representatives. Since the majority of water quality improvement efforts are driven by the establishment of TMDLs this group was selected as the most appropriate entity for reviewing draft criteria and waterbodies identified as high priority for TMDL development.

Updates on the 303(d) Vision were provided to the Taskforce throughout the latter part of 2013 into 2014 and a presentation was given on October 7, 2015. Valuable feedback was received from Taskforce members including representatives from the Utah Department of Agriculture and Food, US Forest Service, and Utah State University on how draft priorities are likely to affect their respective programs and were supportive of the criteria used and waterbodies identified for TMDL development by 2022.

Other outreach opportunities included presentations on the 303(d) Vision and prioritization process at the 2014 and 2015 Salt Lake County Watershed Symposium and Utah Watershed Coordinating Council meetings. Finally, this document will be posted on DWQ's website and public comment accepted for 30 days beginning January 1, 2016.

Stakeholder Survey

DWQ conducted an online survey in April 2015 that was distributed among DWQ's partner agencies, the regulated community, and other stakeholders. A series of fifteen questions were posed to gauge respondents' values associated with the uses, benefits, and threats to Utah's surface waters. Feedback was received from 427 respondents with good representation from rural, suburban and urban areas. Survey results however should not be interpreted to reflect the opinions of Utahans as a whole.

Concern about prioritizing beneficial uses was expressed from some respondents who commented that all uses are important (domestic, recreational, wildlife and agricultural) and should receive equal consideration in prioritization. Survey results however indicated that domestic use received the highest ranking, followed by wildlife, agricultural and recreational uses. While recreational uses were identified as the lowest priority, recreational areas were ranked second highest in importance in a subsequent question associating specific uses to beneficial use designations.

Please rank the following uses in order of importance for protection and improvement.

	Most Important	Important	Less Important	Least Important	Total	Weighted Average
Home uses / Drinking water	**71.47%** 278	**20.57%** 80	**6.17%** 24	**1.80%** 7	389	3.62
Wildlife / fisheries uses	**27.14%** 108	**31.91%** 127	**32.91%** 131	**8.04%** 32	398	2.78
Agricultural uses (irrigation and livestock watering)	**6.10%** 23	**33.95%** 128	**27.32%** 103	**32.63%** 123	377	2.14
Recreational uses (swimming, boating, wading)	**2.42%** 10	**18.60%** 77	**31.88%** 132	**47.10%** 195	414	1.76

When asked what other issues should be considered regarding priorities, water conservation and/or de-watering of streams and reservoirs was mentioned more than any other issue. Other concerns raised include endangered species, climate change, protection of headwaters, and grazing.

When asked about specific uses of water, drinking water sources were ranked as very important followed by recreational areas, unique ecosystems, and scenic areas.

How important are the following to you?

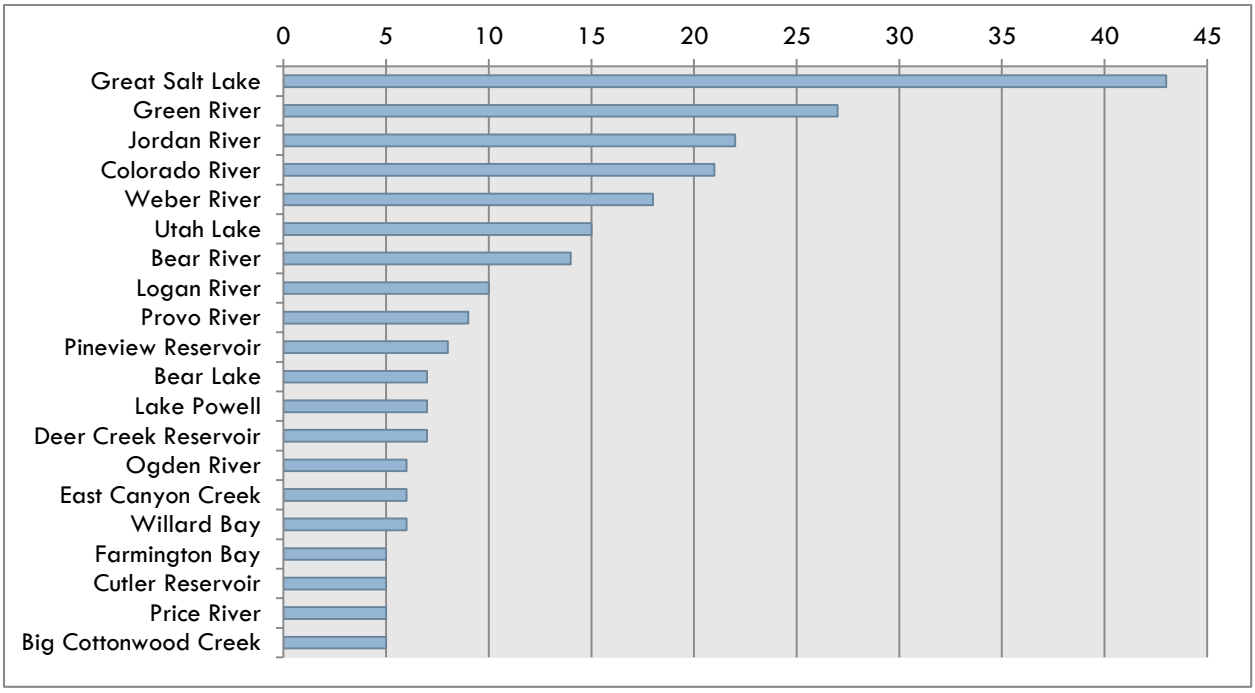
	Very Important	Important	Less Important	Not Important	No opinion	Total	Weighted Average
Sources of Drinking Water	**88.03%** 375	**9.86%** 42	**1.88%** 8	**0.00%** 0	**0.23%** 1	426	3.86
Recreational Areas (State Parks, National Parks, Trails, etc.)	**52.26%** 220	**39.43%** 166	**6.89%** 29	**1.43%** 6	**0.00%** 0	421	3.43
Unique ecosystem (e.g. Great Salt Lake)	**43.74%** 185	**35.93%** 152	**16.31%** 69	**3.78%** 16	**0.24%** 1	423	3.20
Scenic quality	**41.98%** 178	**43.63%** 185	**12.74%** 54	**1.42%** 6	**0.24%** 1	424	3.26
Important Bird Areas (defined by National Audobon Society)	**37.12%** 157	**35.46%** 150	**21.51%** 91	**5.67%** 24	**0.24%** 1	423	3.04
Blue Ribbon Fisheries (see http://wildlife.utah.gov/hotspots/blueribbon.php)	**27.86%** 117	**37.86%** 159	**22.62%** 95	**7.14%** 30	**4.52%** 19	420	2.91
Use of the water for industry and/or agriculture	**26.02%** 108	**41.93%** 174	**24.34%** 101	**6.99%** 29	**0.72%** 3	415	2.88

When asked about specific water quality concerns, toxics and heavy metals were ranked the highest followed by invasive species, litter/debris, bacteria/pathogens and nutrients. Excess algae, salts, and sediment fell within the second tier of somewhat concerned.

How concerned are you about the following types of water quality issues?

	Very concerned	Somewhat concerned	Not concerned	Don't know	Total	Weighted Average
Toxics and heavy metals (e.g. Mercury, Selenium)	**69.25%** 295	**27.23%** 116	**3.05%** 13	**0.47%** 2	426	2.67
Invasive species (e.g. quagga mussel)	**65.80%** 279	**29.48%** 125	**4.01%** 17	**0.71%** 3	424	2.62
Bacteria / Pathogens (E. coli, Giardia)	**58.69%** 250	**34.98%** 149	**5.40%** 23	**0.94%** 4	426	2.54
Litter, debris, trash	**58.73%** 249	**33.96%** 144	**7.08%** 30	**0.24%** 1	424	2.52
Nutrients / low dissolved oxygen (affects fish and other organisms)	**55.16%** 235	**39.91%** 170	**3.52%** 15	**1.41%** 6	426	2.52
Temperature of a stream or lake (affects aquatic life)	**46.59%** 198	**43.29%** 184	**8.71%** 37	**1.41%** 6	425	2.38
Silt / muck (sediment / stream bank erosion)	**38.97%** 166	**49.30%** 210	**10.33%** 44	**1.41%** 6	426	2.29
Salt (affects growth of irrigated plants such as grass, alfalfa, vegetables, etc.)	**35.78%** 151	**52.37%** 221	**10.90%** 46	**0.95%** 4	422	2.25
Pond scum / green slime (Excessive Algae Growth)	**31.60%** 134	**52.83%** 224	**12.74%** 54	**2.83%** 12	424	2.19

Roughly half of those who completed the survey also provided feedback on specific streams, lakes or reservoirs that they had concerns about or felt deserve special consideration. The following chart provides the number of respondents who identified each of the top 20 waterbodies based on their unique ecological, recreational, and/or economic importance.



Finally, respondents were asked to indicate their level of agreement or disagreement with a series of statements designed to help inform the setting of priorities for improvement and protection. Improvement efforts that provide benefits to wildlife and watersheds was strongly favored as well as protection of existing high quality waters. Also supported for consideration in setting priorities was the cost associated with improving water quality and the level of public support.

Please indicate your level of agreement or disagreement with the following statements

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total	Weighted Average
A water quality project that provides additional benefits to wildlife and watersheds should be considered in prioritizing improvement efforts.	**51.89%** 220	**38.92%** 165	**7.08%** 30	**1.89%** 8	**0.24%** 1	424	4.40
Protecting high quality streams, lakes, and reservoirs should receive the same priority as improving those with problems.	**48.82%** 206	**38.63%** 163	**6.64%** 28	**4.98%** 21	**0.95%** 4	422	4.29
The cost of improving water quality should be considered in prioritizing improvement efforts.	**19.29%** 81	**46.90%** 197	**15.00%** 63	**13.81%** 58	**5.00%** 21	420	3.62
The popularity of a stream, lake, reservoir, etc. should be considered in determining the State's priority for improvement and protection.	**17.37%** 74	**39.44%** 168	**23.71%** 101	**16.20%** 69	**3.29%** 14	426	3.51
A natural water quality issue should be ranked lower in priority than an issue caused by humans.	**16.98%** 72	**40.09%** 170	**20.52%** 87	**16.51%** 70	**5.90%** 25	424	3.46
The amount of public support should be considered in prioritizing improvement efforts.	**8.98%** 38	**43.03%** 182	**30.02%** 127	**15.13%** 64	**2.84%** 12	423	3.40

Summary of Stakeholder Opinion Survey

Survey results were representative of well-educated, citizen stakeholders who are concerned about water quality with a good distribution from urban, suburban and rural areas. However, individuals who identified themselves as associated with agricultural production, commercial/retail, construction/real estate, or manufacturing/industry were not well represented in the survey. Water quality issues that directly affect

these interests were generally identified by respondents as a secondary concern such as the effect of salts on irrigated crops and use of water for industry.

Pollutants and uses that directly affect human health were strongly supported as a priority, particularly toxics, heavy metals, drinking water sources, and important recreational areas. Agricultural uses and wildlife/fisheries uses were also identified as important. Other significant water quality concerns identified by respondents include invasive aquatic species (e.g., Quagga mussel), litter/trash, bacteria/pathogens, and nutrients.

These survey results are helpful in directing the Division of Water Quality's restoration efforts on uses and concerns that most directly affect the health and quality of citizen's lives. Respondents strongly supported the prioritization of projects that benefit multiple uses and broader watershed areas as well as protecting existing high quality waters.

Water Quality Board review and input

The Utah Water Quality Board guides the development of water quality policy and regulations within the state and played an important role in reviewing the 303(d) Vision approach. The Utah Division of Water Quality is the administrative arm of the board. The Board's makeup is defined by statute in the Utah Code, Section 19-5-103, and is designed to represent various interest groups of the water quality community.

Presentations of the 303(d) Vision were provided to the Board on January 28, 2015 and September 23, 2015. The first presentation focused on providing background information on what the 303(d) program is and its history in regard to TMDL development. The second presentation focused on the considerations and criteria used to define Utah's priority impaired waters for TMDL study.

The Board was supportive of the approach presented, particularly with the linkage of priorities to the Division's mission to "… protect the public health through eliminating and preventing water related health hazards…" The draft list of priority waters was provided at the September meeting (included below) with no comments or concerns raised by Board members.

SELECTING AND APPLYING CRITERIA

Priority was given foremost to impaired waters on the 303(d) list that have the potential to negatively affect human health. Consideration was also given to specially designated waters with impairments that directly affect their use. Drinking water sources and high use recreational areas such as state and federal parks were factored in evaluating the potential for an impaired waterbody to affect human health. Toxic pollutants, metals (arsenic and cadmium), and the bacterium E. *coli*. were identified as a particular concern for human health.

Excess nutrients and the attendant water quality problems they cause were also considered a priority for TMDL study due to their long term and widespread impact to downstream waters, including ecological degradation and human health risks associated with harmful algal blooms. If an impaired waterbody was designated as a Blue-Ribbon Fishery by the Utah Blue Ribbon Fisheries Advisory Council or Important Bird Area it would also receive priority status for study.

Finally, considering critical permitting issues and ongoing TMDL study efforts, several impaired waters were identified as a priority for development and completion within the next two years.

High Priority Factors			
Waterbody Characteristics	**Pollutants**	**Impaired Uses**	**Pollutant Sources**
Drinking Water Source National Park or State Park High Recreational Use Blue Ribbon Fishery Important Bird Areas Permit Administration Ongoing study	Toxics Metals Bacteria DO Nutrients	Drinking Water Recreation Aquatic Life	Combination of Point and Nonpoint sources

All remaining waterbodies that were not identified as a high priority for TMDL development were then placed in the low priority category by default. Causes of impairments associated with this category are generally associated with habitat degradation and hydrologic modifications, natural sources, or diffuse watershed-scale issues. These are typically very difficult to quantify and best addressed initially through locally-led watershed planning and restoration efforts.

Aquatic life beneficial uses established to protect fisheries and waterfowl habitat are affected by exceedances of criteria set for temperature, pH, and sediment. While these issues are difficult to address, the Division of Water Quality and its many partner organizations and agencies are committed to continually improving watershed health using adaptive management principles.

Low Priority Factors			
Waterbody Characteristics	**Pollutants**	**Impaired Uses**	**Pollutant Sources**
Habitat Degraded Hydrologically Modified Best addressed initially through locally-led watershed restoration efforts	Temperature pH Sediment	Aquatic Life	Nonpoint and/or natural sources only

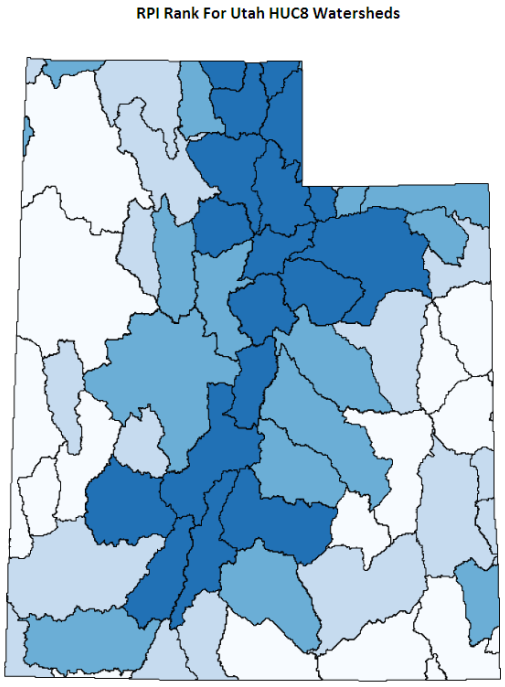
Finally, alternatives to TMDL development were identified for those waterbodies where the source of pollutants is, or has the potential to be, addressed through other programs such as the Salinity Control Program within the Colorado River basin. The effectiveness of these large scale and long term efforts has recently been observed in decreasing salt concentrations in the lower Duchesne River. The Division expects to see the same improvements in other areas that have more recently implemented Salinity Control projects and are very supportive of continuing this important program for the benefit of Utah and its downstream neighbors.

Alternative Factors			
Watebody Characteristic	**Pollutant**	**Impaired Use**	**Pollutant Sources**
Source addressed by other program (e.g., Salinity Control Forum)	TDS	Agriculture	Nonpoint and/or natural sources only

Recovery Potential

A Recovery Potential tool was recently developed to evaluate several different social and environmental factors and determine the potential for correcting or preventing a water quality problem (see http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/recovery/overview.cfm for details). The tool was useful in identifying the opportunities and challenges for restoring water quality on a large scale but the results are at too coarse a scale to reliably factor into priority setting for specific impaired waters.

An initial application of this tool on Hydrologic Unit Code 8 watersheds (HUC8) is shown on the map below using: the number of days with measurable precipitation; percent of watershed classified as unstable; percent of impaired waters within the watershed; soil erosion potential; acre feet of diversions; population; drinking water sources; recreational waters; and number of Total Maximum Daily Load studies completed. The darker color HUC8 watersheds on the map are those that have a higher recovery potential score based on these factors.



Recovery Potential for HUC8 watersheds in Utah

This tool can be easily expanded in the future to include new sources of data and modified to evaluate alternative scenarios. For more information please see

http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/recovery/overview.cfm

Applying Criteria

All of the criteria for prioritizing impaired waters described above were combined into a spreadsheet using the results of GIS analysis, the Recovery Potential tool, and other sources of publicly available information. A weight of evidence approach was then used to identify impaired waterbodies as a priority for TMDL study. The following table includes the priority waterbodies along with a brief rationale on why it was designated as such. This list is subject to change based on new information collected or provided to the Division of Water Quality.

HIGH PRIORITY IMPAIRED WATERS FOR TMDL DEVELOPMENT BY 2022

WATERBODY NAME	IMPAIRMENT	RATIONALE FOR PRIORITY DESIGNATION
Nine Mile Creek	Temperature	TMDL in Progress
Jordan River-1, 2, 3, 4 and 5	E. coli, Diss. Oxygen	TMDL in Progress; High recreational use; Important Fishery
Utah Lake	Phosphorus	History of Harmful Algal Blooms; High recreational use; Important Fishery; Tributary to Jordan River
Mill Creek-1 and 3 (SL City)	E. coli	Tributary to Jordan River E. coli impairment; High

WATERBODY NAME	IMPAIRMENT	RATIONALE FOR PRIORITY DESIGNATION
		recreational use
Big Cottonwood Creek-1	E. coli	Tributary to Jordan River E. coli impairment; High recreational use
Little Cottonwood Creek-1	E. coli, TDS	Tributary to Jordan River E. coli impairment; High recreational use
Emigration Creek Lower	E. coli	Tributary to Jordan River E. coli impairment; High recreational use
Parleys Canyon Creek-1	E. coli	Tributary to Jordan River E. coli impairment; High recreational use
Butterfield Creek	E. coli	Tributary to Jordan River E. coli impairment
Rose Creek	E. coli	Tributary to Jordan River E. coli impairment
Fremont River-3	E. coli	Drinking water source; High recreational use (Capitol Reef NP)
North Fork Virgin River-1 and 2	E. coli	Drinking water source; High recreational use (Zion NP)
Jordan River-8	Arsenic	Drinking water source
Silver Creek	TDS	Impairment significantly affects construction design of new Silver Creek Water Reclamation Facility
Provo River-4	E. coli	Drinking water source; High recreational use
Provo River-6	Aluminum, Zinc	Drinking water source; High recreational use
Snake Creek-1	Arsenic, E. coli	Drinking water source
City Creek-2	Cadmium	Drinking water source; High Quality Category 1 Water
Starvation Reservoir	Diss. Oxygen	History of Harmful Algal Blooms; Drinking Water source; Important Fishery
Lower Bowns Reservoir	Diss. Oxygen, Phosphorus	High Quality Category 1 Water

Resource evaluation

Completion of the 32 waterbody/pollutant combination TMDL studies identified as a priority by 2022 will require significant staff and contractual resources. While several of these studies are anticipated to be developed by Division staff only, contractual assistance will be needed to provide specialized technical expertise and analyses not available through existing resources. These costs will be budgeted on an annual basis based on need and the amount of funding assistance provided from local, state, and federal partners.

ALTERNATIVE APPROACHES FOR ADDRESSING IMPAIRED WATERS

The 303(d) Program Vision promotes the identification of alternative approaches to TMDL development for impaired waters where these approaches would result in a more rapid attainment of water quality standards. The alternatives identified below include: "4C candidates", waterbodies impaired by causes that cannot be addressed by a TMDL such as hydrologic and habitat modification; waterbodies impaired by Total Dissolved Solids that fall within the auspices of the Colorado River Basin Salinity Control Program; impaired waters that have existing TMDLs in place for related parameters and are thus already being addressed; impairments that are the result of natural uncontrollable pollutant sources and hence require development of site specific standards waters; and impaired waters that have taken a straight to implementation approach through ongoing watershed implementation activities.

WATERBODY NAME	IMPAIRMENT	ALTERNATIVE APPROACH
Pelican Lake	Phosphorus (Total)	4C candidate
Pelican Lake	pH	4C candidate
Manning Meadow Reservoir	Oxygen, Dissolved	4C candidate
Manning Meadow Reservoir	Phosphorus (Total)	4C candidate
Tony Grove Lake	Oxygen, Dissolved	4C candidate
MILL HOLLOW RESERVOIR	Phosphorus (Total)	4C candidate
Big East Lake	Oxygen, Dissolved	4C candidate
Big East Lake	Phosphorus (Total)	4C candidate
Lower Gooseberry Reservoir	Oxygen, Dissolved	4C candidate
Lower Gooseberry Reservoir	Phosphorus (Total)	4C candidate
Navajo Lake	Oxygen, Dissolved	4C candidate
Bridger Lake	Oxygen, Dissolved	4C candidate
China Lake	Oxygen, Dissolved	4C candidate
Lyman Lake	Oxygen, Dissolved	4C candidate

WATERBODY NAME	IMPAIRMENT	ALTERNATIVE APPROACH
Yankee Meadow Reservoir	Oxygen, Dissolved	4C candidate
Green River-2 Tribs	Total Dissolved Solids	Colorado Salinity Control Program
Price River-3	Total Dissolved Solids	Colorado Salinity Control Program
Fremont River-3	Total Dissolved Solids	Colorado Salinity Control Program
Ashley Creek Lower	Total Dissolved Solids	Colorado Salinity Control Program
Middle Ashley Creek	Total Dissolved Solids	Colorado Salinity Control Program
Kane Spring Wash	Total Dissolved Solids	Colorado Salinity Control Program
Quitchipah Creek Lower	Total Dissolved Solids	Colorado Salinity Control Program
Ivie Creek Lower	Total Dissolved Solids	Colorado Salinity Control Program
Westwater Creek	Total Dissolved Solids	Colorado Salinity Control Program
Indian Canyon Creek	Total Dissolved Solids	Colorado Salinity Control Program
Antelope Creek	Total Dissolved Solids	Colorado Salinity Control Program
Gordon Creek	Total Dissolved Solids	Colorado Salinity Control Program
Birch Spring Draw	Total Dissolved Solids	Colorado Salinity Control Program
Huntington Creek-2	Total Dissolved Solids	Colorado Salinity Control Program
Virgin River-2	Total Dissolved Solids	Colorado Salinity Control Program
Pack Creek	Total Dissolved Solids	Colorado Salinity Control Program
Professor Creek	Total Dissolved Solids	Colorado Salinity Control Program
Dolores River	Total Dissolved Solids	Colorado Salinity Control Program
Muddy Creek Upper	Total Dissolved Solids	Colorado Salinity Control Program
Saleratus Creek-Emery	Total Dissolved Solids	Colorado Salinity Control Program
Ivie Creek Upper	Total Dissolved Solids	Colorado Salinity Control Program
Comb Wash	Total Dissolved Solids	Colorado Salinity Control Program
Johnson Wash-1	Total Dissolved Solids	Colorado Salinity Control Program
Johnson Wash-2	Total Dissolved Solids	Colorado Salinity Control Program

WATERBODY NAME	IMPAIRMENT	ALTERNATIVE APPROACH
Fort Pearce Wash	Total Dissolved Solids	Colorado Salinity Control Program
Paria River-1	Total Dissolved Solids	Colorado Salinity Control Program
Paria River-2	Total Dissolved Solids	Colorado Salinity Control Program
Paria River-3	Total Dissolved Solids	Colorado Salinity Control Program
Bitter Creek Lower	Total Dissolved Solids	Colorado Salinity Control Program
Evacuation Creek	Total Dissolved Solids	Colorado Salinity Control Program
Bitter Creek Upper	Total Dissolved Solids	Colorado Salinity Control Program
Virgin River-1	Total Dissolved Solids	Colorado Salinity Control Program
San Juan River-1 Tributaries	Total Dissolved Solids	Colorado Salinity Control Program
Wahweap Creek	Total Dissolved Solids	Colorado Salinity Control Program
Chance Creek	Total Dissolved Solids	Colorado Salinity Control Program
Weber River-8	Oxygen, Dissolved	Existing or Related TMDL in place (Rockport Reservoir TMDL)
Clay Slough	Oxygen, Dissolved	Existing or Related TMDL in place (Middle Bear River TMDL)
Clay Slough	pH	Existing or Related TMDL in place (Middle Bear River TMDL)
Chalk Creek3-Coalville	Direct Habitat Alterations	Existing or Related TMDL in place (Chalk Creek TMDL)
Otter Creek-2	Oxygen, Dissolved	Existing or Related TMDL in place (Otter Creek TMDL)
East Canyon Creek-2	Benthic-Macroinvertebrate Bioassessments	Existing or Related TMDL in place (East Canyon Creek TMDL)
East Canyon Creek-2	Temperature, water	Existing or Related TMDL in place (East Canyon Creek TMDL)
Otter Creek Reservoir	pH	Existing or Related TMDL in place (Otter Creek Reservoir TMDL)
East Fork Sevier-2	Benthic-Macroinvertebrate	Existing or Related TMDL in place (East Fork Sevier River TMDL)

WATERBODY NAME	IMPAIRMENT	ALTERNATIVE APPROACH
	Bioassessments	
Kanab Creek-1 and 2	Total Dissolved Solids	Site Specific Standard Development
San Pitch-1	Total Dissolved Solids	Site Specific Standard Development
Blue Creek-Golden Spike	Total Dissolved Solids	Site Specific Standard Development
Lost Creek1-Salina	Total Dissolved Solids	Site Specific Standard Development
Jordan River-4	Total Dissolved Solids	Site Specific Standard Development
Jordan River-5	Total Dissolved Solids	Site Specific Standard Development
Jordan River-6	Total Dissolved Solids	Site Specific Standard Development
Butterfield Creek	Selenium	Site Specific Standard Development
Butterfield Creek	Total Dissolved Solids	Site Specific Standard Development
Utah Lake	Total Dissolved Solids	Site Specific Standard Development
Jordan River-8	Total Dissolved Solids	Site Specific Standard Development
Chicken Creek-2	Total Dissolved Solids	Site Specific Standard Development
Huntington Creek-1	Selenium	Straight to implementation (Colorado Salinity Control Program)
Strawberry River-3	Benthic-Macroinvertebrate Bioassessments	Straight to implementation (Blue Ribbon Fishery)
Kimball Creek	Benthic-Macroinvertebrate Bioassessments	Straight to implementation (East Canyon Creek Implementation Plan)
Silver Creek	Oxygen, Dissolved	Straight to implementation (Silver Creek Natural Resource Damage Assessment and Restoration Program)
Silver Creek	Nitrate/Nitrite (Nitrite + Nitrate as N)	Straight to implementation (Silver Creek Natural Resource Damage Assessment and Restoration Program)
Main Creek-1	Escherichia coli	Straight to implementation (Wallsburg Coordinated Resource Management Plan)

PROTECTION

Protection of existing high quality waterbodies from future impairments is a priority for Utah. Due to physiography of the state, the majority of perennial streams and natural lakes are found within Utah's National Forests the Uinta/Wasatch/Cache, Ashley, Manti-LaSal, Fishlake, and Dixie. All waters within the outer boundaries of National Forests are designated as anti-degradation Category 1 where point source discharges of wastewater are prohibited (UAC R317-2-3). Protections from pathogens associated with septic systems are addressed in rules for Onsite Wastewater Disposal Systems (R317-4) and other nonpoint sources shall be controlled to the extent feasible through implementation of best management practices.

The Division works closely with the U.S. Forest Service to ensure management practices align with water quality protection goals through a cooperative monitoring program and annual consistency reviews conducted in the field. In addition, Division staff regularly provides technical review of projects through 401 certifications and resource concerns in consultation with forest hydrologists and other federal staff.

Source water protection zones identified by the Division of Drinking Water are also a high priority for protection. Given the protected status of their location and critical importance to the local communities they serve, protection efforts are conducted primarily at the local level through watershed planning efforts in coordination with drinking water providers and other local, state, and federal partners. The Division leads one of these efforts that serves a large proportion of the state's population in the Provo River watershed and actively participates in several other watershed committees focused on protecting source water protection zones within the Weber and Jordan River watersheds.

The Great Salt Lake is also identified as a priority for protection due in part to its critical ecological importance to the millions of birds who depend on the Lake's resources and its vital economic importance, contributing over $1billion to Utah's economy each year from industry and recreation. The Division developed *A Great Salt Lake Water Quality Strategy* that reflects the lake's unique characteristics and special importance to Utah (http://www.deq.utah.gov/locations/G/greatsaltlake/gslstrategy/docs/2014/09Sep/Overview_GSL_WQ_Strategy.pdf). The strategy for protection for the lake includes development of numeric water quality criteria for the protection of the aquatic life and recreational designated uses, improve water quality monitoring and prioritize research, implement a plan to monitor and assess the Lake's wetland water quality, and to implement a plan to assess nutrients.

NEXT STEPS

Putting Utah's 303(d) Vision into action will require the continued leadership of the Division and coordination of efforts among many local interests and partner agencies. Utah's Watershed Approach for planning, improvement and protection efforts has worked well in fostering local leadership and partner participation for water quality and will continue to guide how the Division administers its Nonpoint Source and TMDL programs. Financial and technical resource limitations will periodically require temporary shifts in assignments among staff within the Division but it will be important to maintain existing relationships with local committees and partner agencies to the extent possible.

Engaging key stakeholders, the Utah Water Quality Board, and other water quality partners on 303(d) priorities has been fruitful in communicating the challenges and opportunities Utah has for improving and protecting water quality. There are water quality issues on the 303(d) list that we cannot address through existing regulatory and voluntary programs due to unalterable natural conditions. Identifying and

communicating which issues can be addressed and those that cannot has been very beneficial in setting realistic expectations and in ensuring resources are invested where benefits are most likely to be achieved.

The priority waters identified for TMDL development will be grouped together based on location and impairment and scheduled based on the need for additional data and analysis as follows:

WATERSHED TMDL	IMPAIRMENTS	WATERBODIES	YEAR OF TMDL COMPLETION
Nine Mile Creek	Temperature	Nine Mile Creek	2016
Silver Creek	Total Dissolved Solids	Silver Creek	2017
Fremont River	E. coli	Fremont River-3	2017
Provo River	Aluminum, Zinc	Provo River-6	2018
	Arsenic	Snake Creek-1	
	Dissolved Oxygen	Provo River-3	
	E. coli	Provo River-4	
North Fork Virgin River	E. coli	North Fk Virgin River-1, 2	2019
Starvation Reservoir	Dissolved Oxygen	Starvation Reservoir	2019
Jordan River	E. coli	Jordan River-1, 2, 3, 4, 5	2020
		Mill Creek 1 and 3	
		Big Cottonwood Creek-1	
		Little Cottonwood Creek-1	
		Emigration Creek Lower	
		Parleys Canyon Creek-1	
		Butterfield Creek	
		Rose Creek	
	Arsenic	Jordan River-8	
	Cadmium	City Creek-2	
Lower Bowns Reservoir	Dissolved Oxygen, Phosphorus	Lower Bowns Reservoir	2021
Utah Lake	Phosphorus	Utah Lake	2022